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A. LIAUTARD, M. D. V. S., Editor.

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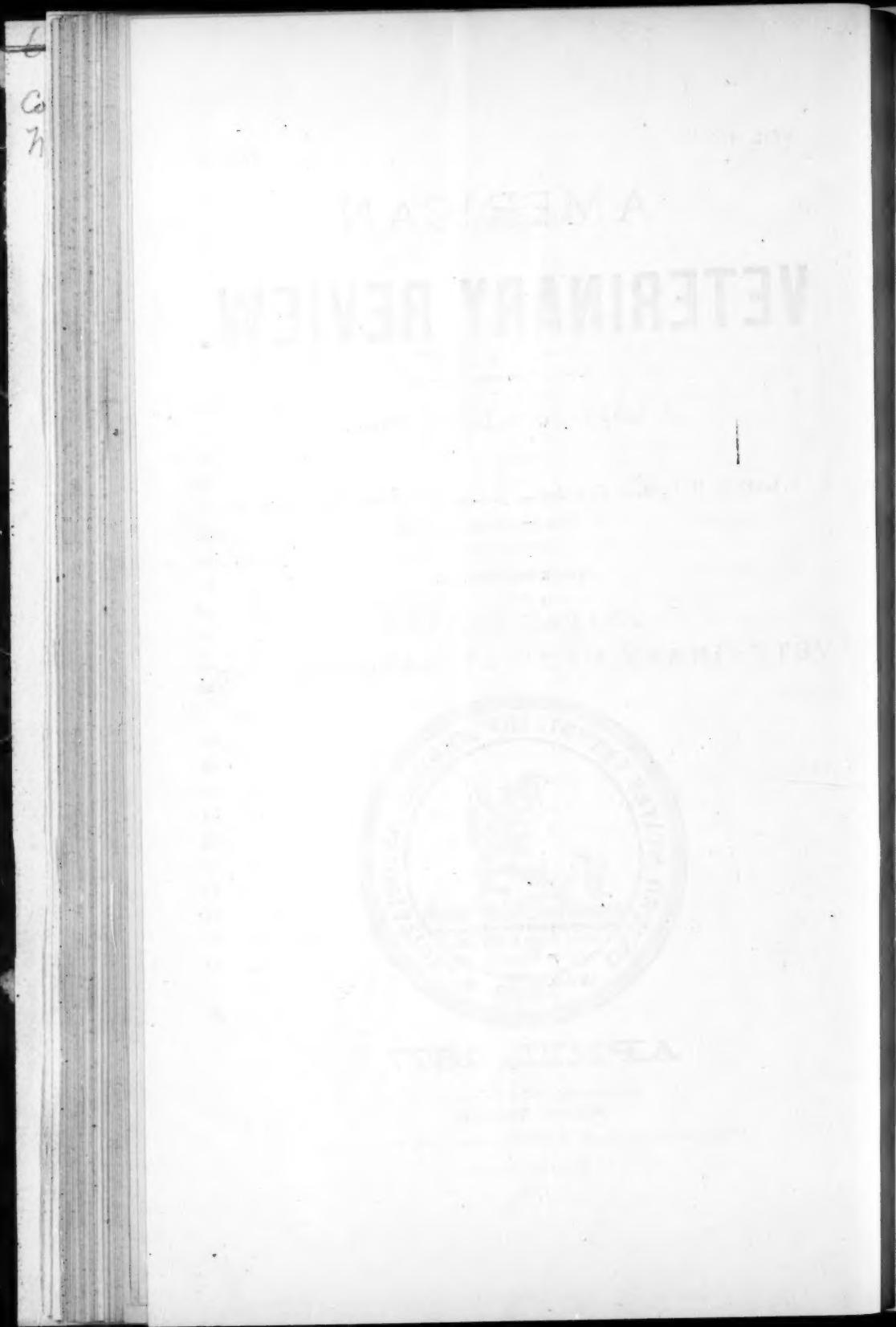


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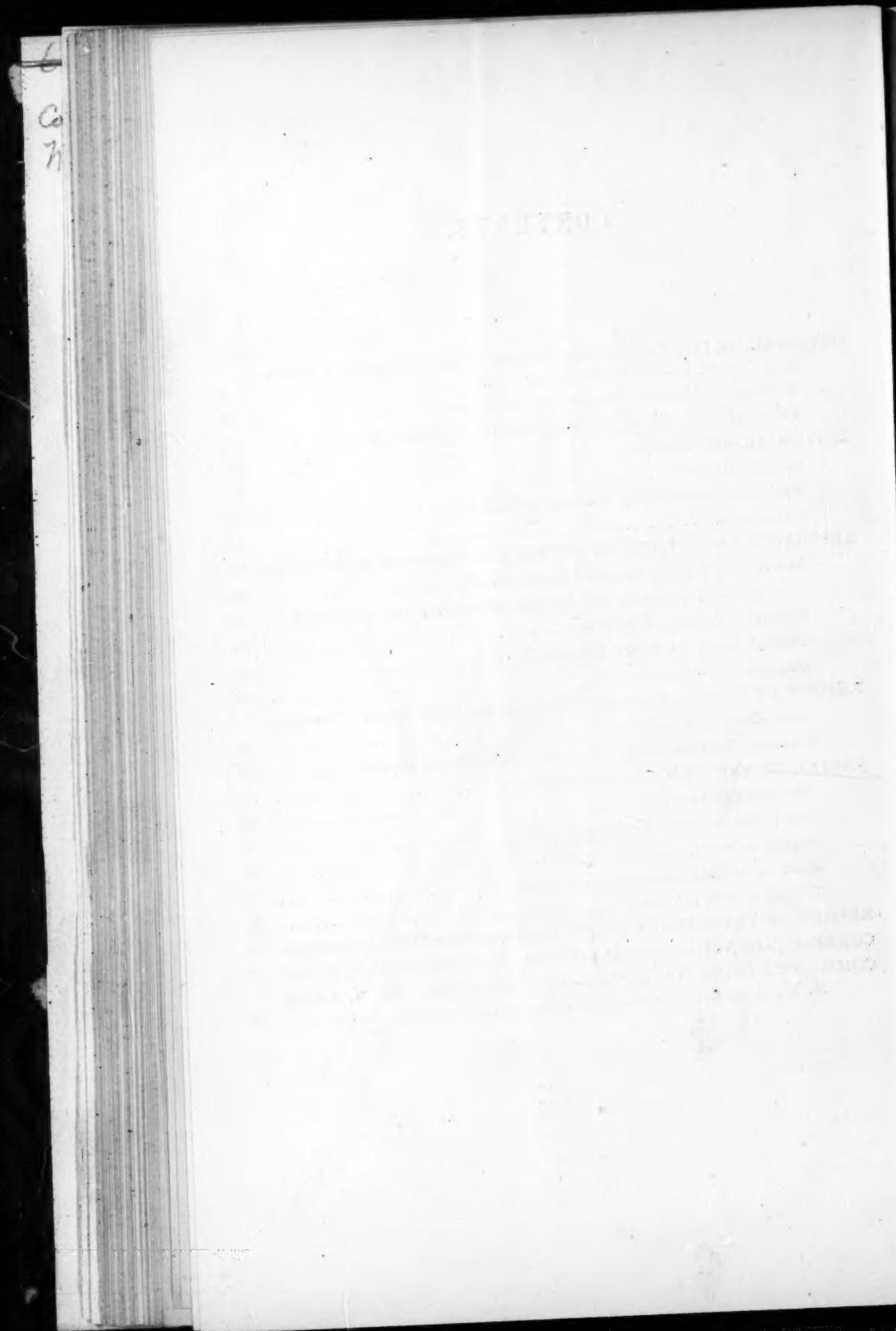
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AMERICAN VETERINARY REVIEW,

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ORIGINAL ARTICLES.

ENDEMIC OF CEREBRO-SPINAL-MENINGITIS.

BY PROF. A. LARGE, M. D., M. R. C. V. S. L.

—:o:—

The recent endemic of Cerebro-Spinal-Meningitis in the ear stables of Brooklyn is very interesting in a professional point of view; and also in settling in my mind one or two points that I have long wished to clear up.

One is the probable period of *incubation* of the diseases; the other is the sanitary, or rather the *lack of* sanitary conditions operative in producing this disease.

But before alluding to these points, I wish to make some remarks on—what I consider—the *pathology* of Cerebro-Spinal-Meningitis.

As the name would imply, it has been considered, and is still considered by professional men both in human and veterinary medicine, as an inflammatory disease; one marked by well pronounced febrile symptoms; some few physicians rank it as belonging to the neurosis or functional diseases of the nervous system, without any *well-defined* or *constant* anatomical characters or post mortem appearances. I must, with the greatest respect, take issue with these ideas and differ from them, as I have for some years now, although when I first discovered and investigated it, and named it in horses years ago, I followed the popular idea of inflammation.

My idea of the disease, and it has grown in strength for several years past, as is known to many, is, first we have a blood poison, else the disease would not be endemic or epidemic; that this poison whatever it is, and without positively knowing, I shall allude to again under the etiology or causation of C. S. M., affects the ganglionic or sympathetic system of nerves, and that the train of symptoms, first, excitation of the circulation, leading to spasm of muscles, then to paralysis of them in different parts of the body according to mode of attack, is due to the loss of the governing power of the circulation, namely, more or less complete paralysis from the toxic effect in the blood of the sympathetic system; a condition of vaso motor-peresis. Everything points to it, even in the eye simulating somewhat the results, as in C. Bernard's operation of dividing the nerves before or behind the *Gasserian ganglion* the effect produced depending whether the sympathetic fibres have been divided or left entire. The

symptoms referable to the cord or membranes, depend how recent or remote the attack has been. If quite recent, and there is slightly increased capillary circulation of the part, there is increased function of the nerves, that is transmitted to the muscles they serve, and as a consequence they are affected, perhaps, first by tremors or *clonic* spasm, which may become *tonic* in character until the increase in blood of the membranes produces pressure, and paralysis is the result. In some cases that are fatal after an average duration, say about three days, we have appearances of exudation, simulating inflammatory products; while in the *fulminating* or *explosive form*, where death occurs in from five to ten hours, we have no local lesions, perhaps ecchymosis of serous membranes as in other blood diseases; death being produced in these short cases by the immediate effect of the poison in the blood, the system being completely overwhelmed with it.

The idea of this disease, in its ordinary form and of average duration being paralysis of the sympathetic system is new to most, and is scouted by some to whom I have given my ideas in the last five years; but others high in authority in the medical profession think there is reason in what I advance, particularly in connection with the success of treatment, both as a curative and preventive agent, that I have directed towards the supposed pathological condition; for I am more and more convinced, after an experience of seventeen years with this disease, that an endemic can be cut short, cases prevented, or if not, rendered mild, so they will yield to treatment, if cases still unaffected be placed under treatment.

Much has still to be learned about the diseases of the sympathetic to clear up many at present unknown pathological conditions. I have thought for some time, and within the last year or two, I have seen one or two articles published with the same idea, by others, that epidemic cholera was a disease of the blood, affecting the capillary circulation by its effect on the sympathetic, but in the opposite condition to what we find in Cerebro-Spinal-Meningitis. In the latter vaso-motor paresis from paralysis of the ganglionic system, in cholera the system is so stimulated by the poison and the small vessels so contracted that circulation is difficult; effusions take place; hence the discharges, cold surface, collapsed and cyanotic condition.

My reasons for not considering the disease either inflammatory or febrile are the pulse and temperature. The first (pulse) is but little, if any, increased in frequency and compressible in character. The second (temperature) is but slightly increased until towards a fatal termination, when it may reach $102\frac{1}{2}$ to 3 F., but I have seen the reverse condition, in a former endemic, six or seven years ago, an explosive case (duration only five hours). The temperature was only

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95⁵ F.; in the present endemic, one of the worst cases had a temperature of only 97 F., when I last took it, about ten hours before death; this case was about four days old at the time, and the temperature had not been any time more than one degree above the normal.

Some physicians even on an experience of several cases give a high temperature to this disease; but I have had experience of several cases in the human subject, and many hundreds in the equine race, and neither in one nor the other, saw a high temperature if the disease was cerebro-spinal-meningitis "*uncomplicated*." If complicated with some other disease, or there is an intercurrent disease that usually has a high temperature, we may have a temperature higher than is usually found in cerebro-spinal-meningitis, but lower than belongs to the disease complicating the cerebro-spinal-meningitis, viz.: In one case in the late outbreak there was one case doing well, relapsed and had as an intercurrent affection, double Pneumonia and Bronchitis; now to Pneumonia (acute) we usually have a temperature 104 to 5 to start with, in Bronchitis 104 to 6, but in this complicated case we had a temperature of 102½ F.

Another case of Cerebro-Spinal-Meningitis with temperature of 101 for some days was complicated with Influenza with Bronchitis as local manifestation, the temperature rose to 105. On my first visit to the stables, I found one or two cases with a temperature of 105. I unhesitatingly pronounced them cases of Influenza, not Cerebro-Spinal-Meningitis, and modified their treatment to what was adopted in the other cases, and with good results.

After this long opening, I will give you a short history of the present outbreak, treatment, cause, result, etc., as far as known at present. On Wednesday, February 28th, several deaths occurred in the Green and Gates Avenue Car Stables, more deaths occurred on Thursday and Friday, how many I could not find out accurately, as different accounts were given. Friday afternoon, 3 o'clock, I was summoned, and found, I believe about forty cases attacked, nearly all in slings and sorry looking objects. I informed the President of the road, a well informed and very intelligent gentleman, what the disease was, that the cause was local, to get all of the well horses (or those not showing signs of disease, though no doubt as result proved, most had the poison in their system) out of the stable, either in circus tents or otherwise, and to lay up as many as he could, as I proposed putting "all" in the stable, about two hundred and forty (240) under treatment, to prevent more cases if possible or render them milder for success in treatment. I was requested to do the best I could under existing condition. Animals not to be moved, and still kept at work until reported sick, conditions anything but encouraging. But I accepted the conditions and went to work. I found the animals already attacked,

affected in several different ways, the same as I described in my pamphlet years ago, some showing symptoms of Paraplegia (Paralysis posterior extremities) most were of this variety, some were first attacked in the throat, paralysis of Pharynx (not sore throat) as shown by the water test, the manner of drinking I pointed out long ago, a few were first attacked in the head, manifesting brain symptoms. When taken on the road, some cases were marked simply by muscular tremors of different parts, (many of the fore extremities) others by symptoms of Colic, before the more direct symptoms manifested themselves. Those in the stables, with the paralytic symptoms of the part first, attacked as previously alluded to head, throat or loins, with all was obstinate constipation (faeces, hard, dry, and coated with mucus, when removed by hand). One case had violent tonic spasm of all muscles posterior to lumbar region.

Pulse in all cases, but little affected in number and compressible; temperature, except in cases already noted, one to two degrees above normal.

Treatment.—Powerful purgatives to overcome constipation, to try and wash out of the system some of the poison; relieve the bloodvessels by a serous bleeding; relieving blood pressure, passive congestion of vessels, and prevent escape of contents under the membranes; the use of Belladonna to stimulate the paralyzed sympathetic. I believe Belladonna one of the most powerful nerve stimulants we know of, particularly to the sympathetic acts on the walls of the small vessels constrict, and regulates the circulation through them. In cases where the heart's action was weak, Ammonia in conjunction, or if throat was affected, and swallowing was difficult as it would be dangerous to administrate medicine by mouth, Atropine was injected hypodermically, and whiskey in gruel given per rectum. All the unaffected horses were placed under the action of Belladonna, and *all* cases kept under its influence for nearly two weeks, though having so many cases, I did not push the drug as I safely could have done, to three times the amount given if I could have closely observed each case myself. I gave strict orders about fumigating and disinfecting; chloride of lime, carbolic acid, and burning tar were freely used. I also directed close attention to ventilation, which I am sorry to say, was not closely observed at first, for I found in spite of treatment more fresh cases (from 10 to 15 a day) were occurring than I had a right to expect, although the weather was truly *March* the entire two weeks, with the exception of three days, I knew there was something wrong, so on the fifth night, I should have done it before, I paid a visit about 10 P. M., and found all the doors, windows and ventilators closed tight, the stench was abominable, the air stifling. I was surprised then we had managed as well as we had. I personally superintended the opening of the

windows, etc., kept them open, and the result was, we did not have in the next three days, as many fresh cases as in twenty-four hours previously; after that, thanks to belladonna and good ventilation cases became fewer, milder in character and at length ceased; beside this treatment, counter irritation or an *attempt* at it was tried, principally with mustard, but the article was poor and did not work. In my private practice I do not put much faith in external applications, except hot water when first attacked; there is no objection to them, but be sure of your article, and I will here add be sure of your purgatives; the aloes *Barbadæs*, must be good and used in free doses, give salts, if safe to assist its action, and use injections freely.

Eight days after my first visit and at my earnest appeal repeated day by day, two stables were built across the street into which about ninety animals, those that had not been attacked as yet, were placed, but three or four new mild cases occurred in these after removal, as the worst was then over, even under the disadvantages under which I had to work, of stables, weather and animals continuing to work in rain, snow, etc.

Results as far as known at last visit, between eighty and ninety animals "*unattacked*." There had been from first to last, as near as I could make out, one hundred and forty-seven cases, with seventy-seven deaths from different causes; over sixty of the remaining seventy cases doing well and likely to recover, and taking their exercise; in fact, a number of them at work doing one trip a day.

Among the deaths are to be included all that occurred prior to any one being called in; the cases hopeless before treatment adopted; deaths in three cases that relapsed from washing the patients and giving a chill, when previously they had been progressing nicely; three cases (two of colic) that were suffocated by the fluid medicine given to them being poured down trachea, while struggling.

These facts I think, speak well for the prophylactic treatment by Belladonna, that I have always so earnestly advocated since I first adopted it years ago; I consider the results remarkably good, under the disheartening circumstances that surrounded me, and which could have been and would have been much better, as I know by experience, under different conditions, if the animals could have stopped their work and been removed to a healthy locality, when I first suggested it, and put under the same treatment we did adopt. But while the officials of the company were willing to do all in their power, they were powerless in some points; the public had to be accommodated at whatever sacrifice to the company, and the latter responded nobly.

I had a great deal of trouble to carry on the preventive treatment. I was much opposed by some on the score it would do no good (I think the results showed differently), and by others that belladonna would

poison the horses; but I had them well under its influence, before I discontinued its use, which was occasioned by the fright to the officials and others, caused by two of the stable men dividing a sixty grain belladonna ball between them and swallowing it, thereby exciting great commotion, which was not lessened by the physicians in attendance, who stated that the men must die from the amount taken—thirty grain extract; I predicted at the time they would recover, which they did. I think it would take a very large dose of belladonna to fatally poison a man, if intelligently treated, as I know it would require an enormous dose to do so in the Horse.

While I am on this subject, I may as well allude to the different strengths of extracts made by different manufacturers. When a medical man prescribes *atropine*, he knows what he is giving and what results to expect. When he prescribes Extract of Belladonna, unless well posted, *he does not know* what he is giving, and as few medical men, even physicians, know the relative strength of different extracts, supposing them to be all alike. I append the following analysis by JOSEPH LEROY WEBBER, Ph. G. of Extracts purchased from different sources, and in the original packages. I think it important the results should be known to prevent working in the dark and the avoidance of errors.

	Percentage of Atropine.
Ext. Bellad. Alcoh. U. S. P.....	.2.571.
Lazell, Marsh & Gardiner.....	.2.511.
Parke, Davis & Co.,.....	.2.358.
Burrough Bros.,.....	.2.358.
Henry Thayer & Co.,.....	.1.836.
Tilden & Co.,.....	.1.798.
Chas. Ellis, Son & Co.,.....	.1.759.
McKesson & Robbins,.....	.1.697.
E. Merck, [Alcoholic Extract].....	.1.488.
Geo. Allen & Co., [English].....	.1.411.
Herrings & C. O.1.179.
Mt. Lebanon, N. Y., Impissated Juice, 6 years old,.....	.904.
E. Merck, [Aqueous Extract made 1869.].....	.275.

Note the difference, some eight times as strong as others; if we use one we do not get the effect we want, while with others, if we do not know the strength and prescribe usual doses, we get stronger action than is desired.

With regard to the *causation* of Cerebro-spinal-meningitis, there is no doubt it is poisoned gases or emanations, depending on defective sewerage in cities, defective drainage of lands in the country, this is the opinion I have formed from repeated observation in different outbreaks, and when we have in association, close, ill-ventilated or closely shut up stables the result is disastrous. I believe with *good drainage* and *good ventilation*, for they must go together, this disease would seldom appear. The car stables where the last outbreak occurred, while they could be ventilated, were kept shut up too much, the

drainage was bad, they had no artificial connection with the sewers ; some years ago they were built on an old meadow below the grade of the surrounding streets, and the filth has since been accumulating under the floor, it was for this reason I was so anxious to have the animals removed, as I always suggest under similar circumstances, in order to *get away from the cause*. In the country, if attacked in the fields, particularly if the ground is low, remove to high ground or send animals to a distance if possible; if attacked in an old badly drained stable, have a shed put up at a distance for them to occupy. That the stable in this instance was at fault, and the cause local is proven by the fact, that the disease did not exist in any other roads belonging to the company, if we except several sporadic cases such as can always be found in hard worked horses, in cities, and also one horse borrowed from another road, where disease did not exist, was, after living in an affected stable for a while, attacked mildly with the disease, although his mate escaped; but they had both been under preventive treatment.

The season of the year has something to do in the production of Cerebro-spinal-meningitis, or in making its poison operative. The severest outbreaks occur a few weeks after the breaking up of winter, when thawing weather that will open the earth, etc., has existed for some time, and when the weather is still too cold to have doors and windows open for free ventilation, unless fires are used ; consequently we have poison being constantly generated, and as constantly accumulating in the buildings.

Period of Incubation. The outbreak occurred about *four weeks* after the change in weather alluded to above, but the mild case spoken of in the *borrowed horse* temporarily domiciled in the affected stable, occurred in about *two weeks*; but as they were all under preventive treatment, and some of the mild cases that continually occurred for the first ten days of treatment, in horses that had been living in the stables; the medicine they were under the influence of, may have had something to do in postponing the attack, beyond the natural incubation. It may be the physical condition and powers of the animal, may have some resisting power. Only about twenty-five fine, strong horses are included in the deaths, and *not all* from Cerebro-spinal-meningitis; the remaining horses were of the night work order; they were the first to be attacked, and succumbed more quickly to the disease. I should say that exposed, *untreated animals* would require about three weeks to incubate the disease, if their powers were not above par, although as stated in the report, *one case was affected in two weeks*. I base my opinion on a fair average.

VETERINARY EDUCATION.

BY D. McEACHRAN, F. R. C. V. S., V. S., EDINBURGH,

PRINCIPAL OF THE MONTREAL VETERINARY COLLEGE.

—:o:—

But a few years ago the popular estimate of the educational requirements of those who made a profession of that branch of medical science appertaining to the lower animals, was not by any means a high one; yet we find in the old works on Veterinary Science, both in the English and Continental languages even of a century ago, evidences of scientific investigation in the different departments of Veterinary science, which put to the blush the superficial acquirements of a large proportion of the so-called qualified graduates of the present day.

Take for instance the "Anatomy of an Horse" by A. Snape, published in 1683, or "Le Cours d'Hippiatrique" by M. Lafosse, in 1772, and we will find that these men were workers, men whose whole time and energies were devoted to study of the science; men who, were they to be told that in this enlightened nineteenth century, there could be men with presumption enough to pretend, or students simple enough to believe, that (even with the superior advantages now enjoyed) they could teach thoroughly in a few months, what took them a lifetime to study, would not believe it possible.

The history of the profession has been so often written, that I will only give it a passing notice till we come to the profession as taught on this continent at the present day. As everyone knows, in the old world the present enlightened epoch commenced in the latter part of the eighteenth century, and has made almost uninterrupted progress ever since. The establishment of the Royal Veterinary College at Lyons in 1761, by the great Bourgelat, whose name no one who is interested in veterinary science can hear without feelings of pride, that our profession should be honored by such a master-mind as that of Bourgelat; of him, Professor John Gamgee said: "In truth, Bourgelat was a great man. He wrote copiously and well on almost every subject of our science and art, *materia medica*, external conformation, anatomy, pathology and the art of shoeing. He was endowed with a clear intellect, he esteemed no labour too great which was essential to the attainment of his noble end. He was above no occupation connected with his adopted calling. Learned in philosophy, reared to the glories of the forum, Bourgelat combined the highest degree of intellectual capability, for the greatest disposition for practical application that it is

possible to conceive associated in any single veterinarian. Yes, book-worms ignorant of practice, and empirics destitute of maxims, will do well to think and dream of Bourgelat, as the monument testifying to what wonders a just exercise and combination of all the useful powers of the intellect can minister."

From this school emanated those pioneers of the science, who were attracted to Lyons by the reputation of Bourgelat, and who imbibing the ideas of progress from their master, when they returned to their homes set about taking steps to improve the standing of their profession by organizing educational schools, and in this way sprung up the many Veterinary Colleges to be found in every country in Europe, presided over by such men as Chauveau, Colin, Koll, Hering, Gurlt, Ercolani, Hertwig, Vella, Bollinger, Bouley, Reynal, and many others. On the continent of Europe, the liberal state grants have enabled the colleges to make much more rapid progress than in Great Britain, where everything of the kind is left to private enterprise. Prominent among the early workers for advancement in the science in England, are the names of Saint Bel, Coleman, Blaine, Youatt, Bracy Clark, Dick, Pereivall, Sewell, Simmonds, and more recently, Gamgee, Williams, Fleming and others.

By the continued efforts of such men has this science gradually crept from out of insignificance to the position of a liberal profession, having a high standing as a science, and bearing directly on the prosperity of the state, the wealth of which consists in a great measure of or is dependent upon the domestic animals.

The progress of the science in the continental countries was more rapid and more marked than in Britain, as in the former each government encouraged the schools by liberal state grants, in many, not only were the necessary buildings and teaching apparatus provided by the government, but the salaries of the professors paid, while the English school had to be self supporting, receiving but little external aid; this in a great measure retarded its progress.

The want of government support, however, was not the only draw back to progress. Unfortunately for the profession for more than forty years, the only teaching school in England was presided over by a gentleman, who, so far as ability and scientific attainments were concerned was eminently fitted for the position; but unfortunately his weaknesses, jealousy, love of money, and egotism, despoiled his good qualities and crippled the progress of the profession by preventing such men as Blaine, and Bracy Clark from joining him and dividing the labors, and thus the best interests of the profession were stultified, and while Coleman accumulated wealth, the science made but little

progress, and thus too avarice, jealousy, and self conceit, robbed him of what might have been a bright and glorious reputation. Thus while Coleman possessed the ability to do much to give the infant science a high position, he preferred to exclude all those able contemporaries from laboring with him, least he should have to divide the profits of the college.

However, it cannot be denied that Coleman gave a high tone to the profession from his wealth and aristocratic associates, but this was a poor substitute for the thorough education and practical acquirements which ought have been insisted upon.

From the St. Pancreas school emanated many graduates who have done much to foster and promote the science. Chief among whom was the late Professor Dick, the father of the profession in Scotland, who, under many difficulties and disadvantages, in spite of the opposition and jealousies of the English school founded the Edinburgh Veterinary College, and left an undying reputation; and as a legacy to the profession, he left his whole wealth, the college property, the excellent museum containing perhaps the best pathological collection ever collected by one man; and better still many pupils unto whom he had instilled his own love of the science, and desire for its progress.

It is a noteworthy fact, that as remarked by Professor Williams in his introductory lecture at the beginning of the past session. "That for the last twenty years, but one book has emanated from the London College, namely: 'Tuson's Pharmacy,' and that all the modern textbooks we possess are written by Edinburgh graduates, these are 'Strangeney's Anatomy,' Finlay Dun's *Materia Medica*, 'the various works of Mr. Fleming, Mr. Armatage, Sir F. Fitzwygram,' and Professor William's own excellent works. * * * * *

"Who are those, (he asks) who occupy the foremost ranks in contributing to the literature of our profession, or who fill the chairs of the schools in all parts of the world where the English language is spoken? I answer they are students of Edinburgh, men educated by Professor Dick or myself. In Canada the heads of the two colleges are D. McEachran at Montreal, who in thirteen years has established a large college, and is now receiving liberal encouragement from the Dominion; and Mr. Smith at Toronto, both students of Professor Dick. In the United States, Professor James Law at the Cornell University, another student of Professor Dick's, and at the Universities of Illinois and Massachusetts, two of my own students, Mr. Prentice and Mr. Lyman, the latter of whom studied at this college." In India, two of Professor Dick's, viz.: "Mr. Lamb at Bombay, and Mr. Hallen at Calcutta; while in Australia, Mr. Graham Mitchell, holds a high

position under the government of Victoria. It is also well known that the leading Veterinary Journal, in English, is edited by Mr. Geo. Fleming, a graduate of Edinburgh."

From the old college in Clyde Street, Edinburgh, have sprung the new Veterinary College at Edinburgh, with Professor Williams as principal; and the Glasgow Veterinary College, with Professor James McCall at its head. It will thus appear how great the benefits are, which the profession has derived from the teaching of the shrewd clear headed William Dick.

The scientific progress which has been made by the profession in all countries, during the last ten or twelve years has been very great. Then, any young man be his mental, moral, physical or educational qualifications what they may, all he had to do was to enter his name, pay his fees, and take his place in the lecture-room, either at Edinburgh or London; the only subjects which the curriculum included, were Veterinary Anatomy, Practice of Veterinary Medicine and Surgery, Chemistry, Physiology, and Materia Medica; and two winter sessions of six months each only, were required to qualify for examination; in this way many men who had no educational training, no taste for study, men whose highest aspirations were limited to cramming enough to enable them to pass the examination were admitted to the detriment of the profession. However the rapid development of all arts and sciences, and especially the increased value and importance of the domestic animals, gave an impetus to the profession, and demanded a higher educational standing, a longer and more thorough curriculum to enable the Veterinary Profession to keep pace with other liberal professions. In accordance with this progressive spirit we find that during the past summer the Education Committee of the Royal College of Veterinary Surgeons adopted the following rules:

1st. "That the year be divided into three terms, viz.: two Winter and one Summer term. That each Winter term consist of not less than eleven weeks, and the Summer term of not less than eight weeks.

2d. That each candidate for the diploma of the Royal College of Veterinary Surgeons, shall be subjected to and pass not less than three examinations before obtaining his diploma.

3d. That no student be eligible for the first examination, until he has studied three terms at a school affiliated with the Royal College of Veterinary Surgeons.

4th. That no student be eligible for his second examination, until he has studied five terms, nor unless he has studied two terms after he has passed his first examination.

5th. That no student be eligible for his third examination, until he has studied eight terms, nor unless he has studied three terms after passing his second examination.

6th. That at the first examination, a student be examined in Materia Medica, Pharmacy, and in writing of prescriptions Chemistry, Toxicology, and Botany.

7th. That at the second examination a student be examined in the Anatomy of the Horse and other Domestic Animals, Physiology and Histology.

8th. That a student at his final examination be examined on Morbid Anatomy and Pathology. Diseases of the horse, including Veterinary Medicine, Surgery and Therapeutics. Diseases of the other Domestic Animals, including Veterinary Medicine, Surgery and Therapeutics, also that he undergo a practical examination as to the soundness and Diseases of Horses, and the other Domestic Animals, and in writing certificates."

It will thus be seen that the course of instruction is spread over three whole winters and two summers, that is, supposing they succeed in passing each examination.

Before entering they have to pass a matriculation examination in writing, reading aloud, English Grammar, dictation, the simple and compound rules of Arithmetic, and Simple rule of three. He can also if desirous of doing so, elect to be examined in any one or more of the following subjects. 1st. Higher Arithmetic, including Vulgar Fractions, Interest and Proportion. 2d. Euclid Books one and two. 3d. Algebra to Quadratic Equations inclusive. 4th. English History. 5th. Geography. 6th. Natural History, (Botany, Geology or Zoology). 7th. Physiology. 8th. Chemistry. 9th. Physics. 10th. Latin, Greek, French, German or Italian Languages.

Although this is an improvement on the former curriculum it is far from being as complete as on the continent. In Prussia for instance, "the education for military service is divided into two classes. For civil employment, the Diploma of the highest class alone is obtainable. The course extends over four winter and three summer sessions. The curriculum includes distinct courses in great part of six hours weekly, and the more important of them repeated in different sessions on Anatomy, Chemistry, and Natural Philosophy, the practice of the forge, Practical Anatomy, Natural History, Botany with excursions, Physiology, Materia Medica, Pharmacology, Surgery, general and special Pathology and Therapeutics, Pathological Anatomy and the rearing of animals, with the study of their external configuration.

To these are added courses of clinical training, while opportunities are afforded for practice in the performance of operations. A course

of veterinary jurisprudence with even a course on the history of the Veterinary Art completes the comprehensive scheme of instruction.⁹ In Sweden the course is almost similar and extends over four years, including a summer and winter session. At Turin, Berlin, Toulouse, Lyons, Alfort, Vienna, and other continental cities may be seen large establishments embracing Lecture-rooms, Dissecting-rooms, Museum, Library, Laboratory, Botanic gardens, Forge, Hospital, the latter provided with foot baths, Turkish baths, slinging apparatus, and every adjunct to a Veterinary Hospital.

In the next number we will consider the profession in America as it should be and as it is, and some suggestions how to place it in its proper position.

(*To be continued.*)

EFFECTS OF COLD.

Read before the New York Veterinary Society, Jan. 25th, 1877.

by A. A. HOLCOMBE, D. V. S. *Plainfield, N. J.*

MR. PRESIDENT AND GENTLEMEN OF THE SOCIETY :

Cold is the absence of heat. It is simply one of the sensations we experience when subjected to a temperature much lower than the normal temperature of the body, or to a temperature considerably lower than that accustomed to. The human body is susceptible of very great variations of temperature. A variation of one hundred and fifty degrees is easily withstood by a person in health. The change must be more or less gradual to prevent deleterious effects. A *dry* cold atmosphere is more easily withstood, than a *moist* one at the same temperature. Cold, according to the way it is employed is a refrigerator, a tonic, an excitant, a depressant, or an anaesthetic. The application of cold withdraws heat from the body, and cools both the surface and the deep parts. The blood coming through the capillaries near the surface is reduced in temperature, and being constantly carried away and as constantly replaced by fresh blood, the entire mass of this fluid soon undergoes a perceptible depression of temperature. If this reduction of temperature is continued, death ensues, and the fluids harden into ice. Patients have been known to remain for six days in a stiffened condition, due to the effects of a low temperature, and ultimately recover. In these cases there are only slight appearances of life exhibited. The pulse can hardly be felt,

the heart beat is almost inaudible, respiration is scarcely perceptible, consciousness is lost, and the body is icy cold. The vitality in this condition is very limited; the first effect of too great cold is to diminish the vitality of the part to which it is applied. The capillaries of the part are strongly contracted so that a limited quantity of blood flows through the part. Nutrition is thereby impaired or may even be entirely suspended; if there is an entire suspension of the nutritive process, gangrene will of necessity follow, for there has been a destruction of the vitality of the part. Since all functional activity is exhausted by over exertion for a lengthened period of time, the capillaries after having been strongly contracted for a season, undergo paralysis and are distended with blood. In some instances the capillaries never regain their power of contracting and ever remain dilated. This condition of the capillaries will frequently be noted in frost-bitten noses—the nose ever presenting a red or reddish blue appearance. Too great cold will cause vesicles to raise on the surface of the body as well as too great heat. These vesicles differ from those caused by heat, in that the serum which they contain is usually bloody. When a part of the body becomes completely frozen, it will snap off like a pipe stem or piece of glass. Subjection to a low temperature may cause complete depilation in the horse without raising a vesicle. In the winter of 1875, a young black gelding that had been laid up for two weeks from scratches, was taken out one day before a sleigh when the temperature stood at zero; after about two hours exercise, part of which was fast, and the rest slow, he was returned to his stable and warmly clothed, as he had been clipped some three weeks before; in twenty-four hours time he showed signs of indisposition, and in six days was naked except the limbs, mane and tail. The horny layer of the epidermis peeled off with the hair, and the exudation into the skin gave it a thickened velvety feel. What caused the hair to fall off? Was it the direct action of the cold on the hair, or were the blood-vessels supplying the hair bulbs so strongly contracted by the cold, for a length of time sufficient to destroy the vitality of the hair, because of the absence of nutrition? The loss of the coat never seemed to injure the animal in any way, and in a few weeks time was replaced by a new one.

Frost bites occur most often in veterinary practice upon the legs of horses worked in cities, where salt is placed upon the snow and ice to melt it. The salt causes the snow to assume the liquid form at which time it absorbs a certain amount of latent heat; this heat is taken from the nearest object, and when that happens to be the feet and legs of a horse, the temperature of the parts is reduced so as to destroy their vitality.

The therapeutical effects of cold are more important to us in this climate than is the consideration of its devitalizing powers. Cold is often applied to the surface of the body for the purpose of reducing the temperature; the general cold bath may be made to reduce the temperature of the body as much as ten degrees Fahrenheit; in the extremities it may be reduced even lower than this. The normal temperature of the body is speedily restored after being reduced by the cold bath; the extremities may remain cold for some hours. A cold bath of course abstracts heat from the body, for the water of the bath becomes warmer, but in health this loss of heat is rapidly restored. A *moist* hot skin is much more comfortable than a *dry* hot one. This is probably due to two causes; first the relief experienced from the blood-vessels of the sudoriparous glands unloading themselves by the production of sweat, and secondly by the suppleness given the skin from the presence of the perspiration, and pleasant cooling sensations due to evaporation. The lowering of the temperature by means of the cold water bath or cold sheet, in fever stricken patients is considerable and durable. There is no doubt but what the cold abstracts more or less heat from the body, but what prevents the temperature from rising to the previous standard? Does the cold prevent the unnatural formation of heat? If so in what manner does it accomplish this result? If the elevated temperature of fevers is due to the active tissue changes taking place, then will the application of cold, I believe, in a measure prevent the unnatural formation of heat, and it does so by giving to the nucleus an increased power of resisting unnatural influences, thereby diminishing the activity of the tissue change. Cold when judiciously employed is a powerful tonic. A cold climate is both tonic and bracing. The loss of heat which takes place during the exposure of the healthy body to cold is compensated for, and the temperature maintained by increased combustion. There is no doubt but what there is increased oxidation of the tissues, for there is a greatly increased quantity of CO_2 thrown off by the lungs. On exposure to cold the lungs absorb more oxygen than at other times, so that the processes of construction and destruction are more rapid than in a warmer temperature. Hence, a more vigorous health is maintained in a cold climate, for when destruction of the tissues ceases, further assimilation of the nutritive materials of the blood comes to an end; *formation* in the adult being limited by the *destruction*. The destructive changes take place in proportion to the amount of oxygen absorbed; hence, when this gas is exhausted, many products of destruction remain only partially oxidized, so that further tissue disintegration ceases, and assimilation as a matter of course is suspended.

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Cold when applied locally may act as a local tonic. If too long continued it depresses the part; it does so by the influence of its action on the capillaries. Intense cold applied to a part of the body for a few minutes will abolish sensation, therefore it becomes, under these circumstances, an anaesthetic. Applied locally and suddenly cold acts as an excitant, as seen when applied to persons who have fainted or are narcotized. The application of cold to the surface of the body lessens the perspiration in proportion to its degree. It does so by driving the blood from the skin and surface of the body, to the internal organs where it flows in increased quantities. In man albumen is often found in the urine during a cold bath, and it can probably be attributed to the congestion of the kidneys which takes place, for after the bath it speedily disappears.

Sudden changes of temperature, *i. e.* from warm to cold, increases the quantity of urea and sulphuric acid in the urine. The impression which the forcible impact of cold water makes upon the nervous system is sometimes very great. It may be successfully used in treating "poll evil." When the swelling is first manifest, the water should be allowed to fall upon the "poll" in a considerable stream, from a height of about ten feet; it will in many instances prevent the formation of abscess, and in others limit the amount of suppuration, results no doubt always to be desired. The shower bath or cold sponging is recommended in the treatment of children suffering from rickets. It would evidently have the same beneficial effects upon the domestic animals when similarly affected. The cold douche is of great service in arousing a patient from the stupor of opium poisoning. The cold applied to the head in this manner removes the conditions on which the stupor depends; consciousness after a time is restored and the breathing becomes natural again. The water should be poured upon the head from a good height, so as to produce as great a shock as possible. The cold douche is an excellent local tonic to individual parts of the body, as in stiffness of the joints remaining after slight injuries; or in rheumatic arthritis.

The application of cold is especially beneficial in all injuries where there is more or less devitalization of tissue—as in contused wounds. It acts as a tonic upon the tissues which are not too much injured, and tends to limit the febrile reaction which follows the injury, while it does not interfere with the healing process. In the treatment of Laminitis, *cold* is an indispensable adjunct to the internal treatment.

It is recommended and extensively used in the treatment of Lymphangitis; but my own experience is that warm fomentations do much better.

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As a haemostatic the virtues of cold require no commendation from me. In the treatment of fevers I believe if we could use the cold water bath as easily as they do in human practice, we would find it a valuable agent in reducing the temperature. Many of the symptoms and therefore the dangers of fevers depend on the elevation of the temperature. A high temperature affects the organs in two ways; it first depresses or entirely abolishes their function, and in the second place it produces fatty or parenchymatous degeneration of all the tissues. This degeneration takes place especially in the liver, kidneys, heart, blood-vessels and voluntary muscles. To successfully combat these effects of high temperature, we must evidently *lower or prevent* the undue development of body heat. If we could use these baths early in fevers we might prevent the oncoming of these degenerative changes. By readily lowering the temperature we would reduce the frequency of the pulse, strengthen the heart's action, and so avert the danger of failure of the heart and hypostatic congestion. At the same time it would improve digestion and assimilation, and thereby promote the general nutrition of the body. Cold applied to the back and loins is said to be of service in Spinal Meningitis, but I have never seen it used. Ice applied to the head in diseases of the brain is no doubt often of great service; I doubt very much whether young practitioners at least, fully appreciate the therapeutical effects of that remedy always at hand—cold water. They are too apt to want to use something with which the *groom* is unacquainted; they seem to fear that their qualifications will be questioned if they recommend anything so simple as cold water. No doubt this will be the case sometimes, yet it should not deter us from making use of so cheap and efficient a remedy; there is hardly a local inflammation in which it cannot be used to good advantage.

In many cases of slight lameness coming on without any known cause—where there is a slight elevation of temperature without any other pathological condition to be detected, the use of cold water for a few hours, or at most a few days time will effect a cure just as readily and permanently as blistering or the use of liniments; that it is more difficult to use in many cases in veterinary practice, than it is in the practice of human medicine, I admit, yet there are very many cases in which it could be used to advantage where it is now neglected for the use of something more easily applied but less efficient. Although I am not a Hydropath, still I believe the future will find water—both warm and cold, occupying a higher position upon the list of veterinary remedial agents than it occupies to-day.

EDITORIAL.

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EXPLANATION.

At the 13th annual meeting of the United States Veterinary Medical Association, it was decided that the *American Veterinary Review* be published in the months of January and July of each year, making it a semi-yearly; with the intention of recording the transactions of the association, and publishing cases of interest which might be brought forward by members of the profession. To that effect the first number was issued with the beginning of the year.

This was received in such a manner by the profession all over the country, and all copies were applied for so rapidly, that it was found necessary to have a second edition of that number printed, which had been almost entirely distributed.

From the information which we have been able to collect from the letters which we have received from all parts of the United States and Canada, encouraging and promising to assist the steps thus taken by the association, we became convinced that it was a desire of many veterinarians of this continent, to have at their disposal a means of corresponding and discussing veterinary matters together, and that a semi-yearly paper would not fill the need of our profession.

For this reason, at the semi-annual meeting of the United States Veterinary Medical Association, we proposed to publish the *Review* monthly, and according to resolution passed at that meeting the second number is issued.

It is our intention not to have our periodical limited to the report of cases or discussion of papers; but to embody in it any subject which is connected with veterinary science, and therefore, we will try to furnish our readers with articles of interest to the Veterinarian, to the Agriculturist, to the Legist, and to the Sanitarian; leaving our columns open to all who may be interested in the elevation of veterinary medicine in America, and with the hope of receiving their kind support and assistance.

The *Review* will be published after this, monthly; forming at the end of the year a volume of over five hundred pages.

The subscription dated from this number will be \$5.00 a year; 0.50 a single copy.

All communications, books for review, etc., will be addressed to the Editor, 141 West 54th Street, New York. Anonymous letters and articles will not be inserted.

Morbid Specimens may be forwarded to the Editor, and with the consent of the owner, will be registered and placed in the collection of the American Veterinary College.

SANITARY MEASURES.

At the beginning of the year, news of an outbreak of Cattle Plague in England was received through the press and soon our veterinary journals gave notice of the different orders which were at once issued to stop its spreading.

Imported by cattle from Germany to Hamburg, and hence to Deptford, three days after they left Holland, though care was taken to prevent communication between healthy and sick animals, the disease found its way to London and might have done much harm had not the measures which Great Britain learned so dearly to establish, been at once enforced.

At the same time France, who is organizing a Sanitary Service for her whole territory, issued also through her Secretary of Agriculture a decree prohibiting the importation of cattle, sheep and goats from Germany, England, Austria, Russia and Turkey.

Who will, can, is the motto that Mr. Bouley applies to the prophylaxy of cattle plague, and to-day he asserts that excessive measures are not necessary to control that disease, as after all, the Rinderpest is too well known to Veterinarians; and while severe precautions, well reenforced, are sufficient to stop the spreading of the disease, commercial interests ought to be considered in the promulgation of the sanitary acts; and for this reason he asks if, it is not exaggeration to prevent the importation of sheep or goats, as long as only a few cases have shown themselves, almost sporadically in Germany: importation of sheep from Russia has been going on in ordinary circumstances and no accidents as far as he knows, ever took place in France or other countries.

Belgium followed the example of France and also issues a decree preventing the importation of cattle, sheep, &c., coming from England, Russia, Etc.

When we look at the precautions that European countries are taking to protect their live stock—when we read the advices that their Veterinarians are giving to assist the work of the proper authorities,

and when we see the efforts that they make to check the spread of diseases by the organization of Sanitary Veterinary Boards, we cannot help reflecting as to the condition of this continent, where contagious diseases are so prevalent in some of the states, almost without preparation to check their spreading.*

The advice given by Professor Law and McEachran, in their papers which we published in the first number of the *Review*, ought not to be overlooked, and it seems to us that the duty of all veterinarians of the country is to rally together to obtain from our government laws to organize a Sanitary Veterinary Board, for the protection of our live stock.

RABIES—ITS TREATMENT WITH XANTHIUM SPINOSUM.

There is probably no disease for which remedies of all kinds have been recommended as panacea as hydrophobia, but unfortunately none as yet have stood the test of proper experiment.

A short time ago Dr. Grzymala of Podolia, published the statement that he had cured about one hundred cases of Rabies, with the administration of Xanthium Spinosum. These results were so wonderful, and the authority of Dr. G. had such influence upon the belief given as to his success, that experiments were started to test the power of the new remedy by Professor Trasbot and Nocard of Alfort.

* As we go to press the following order from the Secretary of Treasury has been issued:

IMPORTATION OF LIVE STOCK.

A CIRCULAR FROM THE TREASURY DEPARTMENT.

WASHINGTON, D. C., March 28th, 1877.

The prevalence of rinderpest in Germany, and of that malady and the foot and mouth disease in England, has led this department to prohibit the importation of neat cattle and the hides of neat cattle from those countries into the United States. By reason of the proximity of Holland and Belgium to Germany and of Ireland to England the prohibition is hereby extended to embrace such importations from those countries. The department is informed that rinderpest is infectious as well as contagious, and that sheep, horses and swine may be media for its communication. It is also understood that the litter upon which these animals sleep spreads the disease.

While the department has no authority under the law to prohibit the importation of horses, sheep and swine, it desires that all measures practicable be taken on the arrival of such animals from the countries named to prevent the possibility of contagious diseases being communicated thereby to stock in the United States. It is suggested that horses and swine coming from any of the countries named be examined by experts and if necessary quarantined for a reasonable time; to which I apprehend that importers, as a rule, will offer no special objection, as it is to the interest of all concerned to prevent the spread of this disease in the United States. Collectors and other custom officers are therefore directed to take such action in cases of this character as in their judgment may be necessary.

Blooded stock coming from the countries named may be admitted when accompanied by a consular certificate of non-infection as authorized by the department's letter of the 16th of March last. It being presumed that such stock is selected with care and that it would not be taken from herds which are infected with the diseases mentioned.

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They inoculated 11 canine animals with the saliva of a living mad dog; some were placed under the administration of the Xanthium, and others were left alone to prove the virulence of the saliva. All these animals died—some showing unmistakable symptoms of hydrophobia, and amongst these, one after an incubative stage of thirteen days, and another of eighty days—the first took about four ounces (125 grammes) of the powdered Xanthium, the other about nine pounds (four and a half kilogrammes).

These experiments demonstrate most evidently the inefficacy of the *Xanthium Spinosum*, as far as being a cure for Rabies—it will not cure it—it will not prevent its development.

After all the only trustworthy precautions in case of bites remain yet in the old ones, viz.: Suction of the wound, ligature above the wound, circular excision of the bitten parts, and when possible immediate deep cauterization.

ENTEROTOMY.

The Veterinary Journal of March, gives an excellent article from Mr. A. Harthill, V. S. of Louisville, Ky.; speaking favorably of the puncture of the intestines in case of flatulent colics in horses. This is by no means a new operation, as we find it already mentioned by Vegetius, by Roem and Bouwinghausen in 1776; by Bourgelat and Chalbert, and more recently by Brogniez, Rey, Herring, Charlier and others; still as Mr. H. says, it has found but little application in the hands of the Veterinarian. Why? is a question difficult to answer, unless it is due to the fear of possible complications following, as far as the peritoneum is concerned, by its susceptibility to inflammation with fatal results. Mr. H. reports one special very interesting case, and mentions several others, which proved successful by this treatment, and there is no doubt that much good can be derived from it; complications are rare and exceptional. The right flank is undoubtedly the place to perform it, and the animal can be as well kept standing up as to be thrown or placed in the stocks; not being a painful operation, and done rapidly the animal will not defend himself. Whether it is to be done early or late in the development of the disease is a question which is yet, we believe undecided. Some recommending it almost from the onset of the disease, others advising to wait until the effects of other means of treatment have failed, or even only in extreme cases. At the last meeting of the N. Y. Veterinary Society, a paper from Mr. J. Myers, Jr., D. V. S. of Cincinnati, Ohio, was presented upon that subject, which will be published in full in our next number.

ABSTRACTS FROM FOREIGN JOURNALS.

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LUXATION OF THE TRAPEZIUM.

The author reports this case in saying that a black mare being out hunting was found lame on the near knee, which on being flexed, showed that the trapezium could be easily moved upwards and outwards, the parts being much swollen and painful round the knee; still the lameness was not excessive—fomentations, rest and subsequently cold water and evaporating lotions were recommended, instead of blister at first suggested, and in a fortnight the lameness had disappeared; however the trapezium continues slack, and will probably remain so to the end of her life. (*Veterinary Journal*).

ANEURISON OF POSTERIOR AORTA—RUPTURE—DEATH.

This took place in a stout, fat pony, good roadster and very ambitious to work. After a long journey, and when tired he would knuckle over his near hind fetlock as if seized with cramps; he showed this symptom for some months, but for a short time previous to his last ailment, has been somewhat sluggish. One day he was found down and unable to get up, with some colicky pains; when medical attendance came he was found standing in his stall, with ears cold, pulse quick and just perceptible, mucous membranes pale, and by rectal examination presented a large pulsating tumour near the end of the posterior aorta. He fell dead a few hours after—on post-mortem a large quantity of bloody fluid was found in the abdomen, and much clotted blood; a large clot measuring a foot and half in length, was held by the surrounding tissues in apposition to the inferior surface of the posterior aorta. Mr. Fleming says that the walls of the vessel contained bony deposit, which rendered it like a shell, and prevented its collapse while in an empty state. (*Veterinary Journal*).

SUBCUTANEOUS INJECTIONS IN THE TREATMENT OF OMBILICAL HERNIA IN CHILDREN.

Dr. Luton has just been applying to the treatment of congenital ombilical hernia in children, the method of subcutaneous injections with local effect, and with such a success that it is to be hoped that

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put in practice for the exomphalous of colts it will give the good results of the cauterization with nitric acid without its dangerous sequelæ. In a first case it was for a little boy seven months old, always crying and coughing. The umbilic well bandaged from the time of birth as usual had not retreated sufficiently, and a little hernial tumour developed itself, easily reduced but soon reappearing as soon as pressure was removed. Bandages were of no avail—on four different points, at each corner on the umbilic, we may say, 10 drops of a solution of common kitchen salt saturated and filtered were injected; as many little indurated tumours soon developed themselves, but no suppuration; a compresse and a bandage made the dressing. About a month after, the resolution was perfect and the hernia removed.

In a second case the hernia was very large—the general conditions of health left but little chance of spontaneous and permanent reduction. To the left and right of the umbilic in the cellular tissue an injection of saturated solution of chlorure of sodium was made; these were followed by little abscesses, which were opened with the lancette. The cicatrization was quick and simultaneously the umbilical sac emptied itself and the hernia cured.

In a third case the child had a left inguinal hernia. In the cellular tissue, on a level with the external inguinal ring about 5 drops of saturated solution of chlorine of sodium were injected; but though at first this seemed to be successful, the hernia soon returned. Whether the injection was not sufficient or ought to have been renewed, the attempt was not made, being objected to by the parents.

A fourth case of umbilical hernia in a very healthy boy. An injection was made on each side of the umbilical opening, a bandage applied and in a few weeks the hernia had disappeared.

The interpretation of this method is undoubtedly analogous to that of the treatment by cauterization with nitric acid used in veterinary medicine, and as Mr. Bouley remarks, the irritation produced by the injection, stimulating the tonicity of the tissues and thus the contraction of the ring, is not the only explanation to give of the result obtained, but the mechanic action produced by the injected fluid and the œdema which follows its presence, thus pushing back the intestines in the abdomen, has no doubt much to do in allowing the closing of the ring; which in other way is kept open by the presence of the protruding intestines and therefore cannot close.

It is a method that veterinarians practicing in breeding districts will do well to try, remembering, however that probably the quantity of liquid injected would be for a colt, either probably too small, or not irritating enough.—*Recueil de Med. Vet.*

FRACTURE OF THE NECK OF THE FEMUR.

After stating that only four similar cases are on record,—one by Rigot, one by Fromage de Feugre, a third by Leblanc and a fourth by Dupuy—Mr. Nocard reports two cases: First. A vigorous animal, seven years old, was thrown to be fired for spavin; when the operation was finished he was allowed to get up, which he did without effort. In going to his stall he tried to jump over a small gutter in front of him, slipped violently with his off hind foot, made a bolt forward and fell very heavily. In rising, the right hind leg was kept up, the animal being unable to put it on the ground; he was conducted to his stall and in a few minutes the thigh became the seat of an enormous swelling, the leg being very painful to the touch. Diagnosis, rendered difficult by the swelling of the parts, was made by the excessive mobility of the extremity, its great retraction, the excessive pain when the limb was moved and the impossibility of carrying weight upon it—the animal died. On post mortem a comminuted fracture of the neck of the femur was found extending from the cartilaginous rim of the head to the point of insertion of the psoas muscles. The femoral artery was entirely lacerated and an enormous clot surrounded the parts, seat of the lesion.

Second. An Irish cob, who had shown lameness on the off hind leg for some months, was thrown down to be fired for indurated wind-galls of the extremity. After much struggling during the operation, the hobbles were removed, but he vainly tried to get up, although no fracture of the vertebral column could be detected. He died during the night, his death being attributed to nervous exhaustion. The post-mortem revealed a fracture of the neck of the femur—the femoral head remaining attached to the cotyloid cavity by the inter-articular ligaments.—The neck of the bone, and all the part of the internal face of the femur, included between the cartilaginous edge and the superior part of the trochanter were crushed in numerous pieces; a thick layer of the bony vegetations round the external face of the femur, indicated the repairing process of an old incomplete fracture of the bone, thus explaining the lameness of previous time, which had resisted all forms of treatment. (*Archives Veterinaires.*)

CASTRATION WITH THE ELASTIC LIGATURE.

Under this heading Mr. Rossignol of Melun, (France,) reports a series of experiments which he had made upon rams and one horse

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with excellent results. The use of the elastic ligature in human surgery for the removal of the breast of an anemic woman, suggested to him its use in Veterinary Medicine, and first he employed it to remove squirrous mammae of sluts, and large warts in horse and cattle. Afterwards he applied it first to castrate several rams, and then an old stallion.

The *modus operandi* for the stallion was as follows:—the animal being cast and secured in the usual way, was castrated by the covered method, the serotum and dartos alone being incised, then a waxed fine twine is placed parallelly to each spermatic cord, both being afterwards surrounded by an elastic ligature made with a vulcanized India rubber tube of the size of a quill. Elongated as much as possible and twisted three times round the cord and the twine, this ligature was secured by a double knot, over which the twine is secured and also tied, and the animal is allowed to get up. Two hours later the testicles are of a dark purple color and moved up and down by spasmodic contractions of the cremaster—no colics. Forty-eight hours after the testicles are black, their substance soften and oozing through the envelops, the wounds have a very offensive odor; one of the testicles drops down while the animal takes an hour outdoor walk. Horse is dull, and when standing raises convulsively one of his legs now and then; the second testicle falls off the next day, (3d), much swelling of the sheath. The wounds are antiseptically dressed, the swelling of the sheath scarified and seventeen days after, the animal is in full convalescence. Similar results were obtained in the experiments upon the rams; the only positive unfavorable results were death in one ram by gangrene, and one by traumatic tetanus.

The claims of this new mode of operation, are 1st. Less pain after the operation. 2d. Less difficulty in walking. 3d. No stretching of the cord. 4th. The wound is kept open. 5th. No chance of hernia. 6th. Suppression of hemorrhage. 7th. Diminution of chance of gangrene and of peritonitis. 8th. No danger of laceration of the cord. (*Archives Veterinaires*).

DIAGNOSIS OF PREGNANCY.

In a clinical lecture delivered by Professor St. Cyr, this eminent veterinarian called the attention of his class to the beatings of the heart of the foetus as a means of recognizing the state of pregnancy in the domestic animals. After mentioning the history of the first discovery of this heart action in women by Mayor of Geneva, in 1818, then the mentioning of the same by Lafosse, and later by Lanzillotti, Buonsanti, Hollman and Saake, he describes the phenomena as follows:

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 "Apply your ear upon the abdominal walls on the right side, a little below the flank, and listen attentively. You soon will hear a succession of light repeated noises, perfectly rhythmatized, separated by a moment of silence and perfectly repeating the beatings of the heart auscultated in the adult. These noises are very weak though very distinct, when with attention, once they are caught by the ear. They resemble much the tic-tac noise of a watch; evidently these are the cardiac noises—not of the mother, they are too rapid and more numerous—nearly double in a given time."

The significance of this phenomena is of a great importance, as to the live condition of the fetus; it is claimed that these noises are audible after the 25th week or about the 6th month of gestation, though they may be heard sooner.

This is a precious and new sign for the diagnosis of pregnancy, which will be of great advantage to the practitioner. (*Journal de Zootechnie—Lyon*).

REPORT OF CASES.

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PURULENT COLLECTION OF THE RIGHT SUPERIOR MAXILLARY SINUS—ODONTOMA IN ITS CAVITY.

This is the case of a black mare, aged, which was sent to the American Veterinary College by Mr. Vining of New Haven, with the following history:

"This mare three years ago had the *epizootic*, after being very sick, she was turned out and recovered, but two years ago she began to discharge from the right nostril—more at times than at others—more offensive in odor in some occasions—and very often apparently subsiding; she had been condemned as glandered.

On admission, March 22d, she presented a condition corroborating the history. She discharged from the right nostril a white, thick, purulent matter, scarcely offensive—the glands of the maxillary space are not swollen—the pituitary membrane healthy. The face on the right side, immediately from the zygomatic crest and maxillary spine upward presented a convexity which extended over the lacrymal. This was exceedingly sore on pressure and dull on percussion—the other side of the face was healthy; the general health was as good otherwise as could be desired.

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Diagnosis—purulent collection of the sinuses not due to diseased condition of the teeth which had been carefully examined and probably sequelæ of the catarrhal influenza with which she suffered 3 years ago. Prognosis—favorable.

Prepared by 24 hours diet, she was on the morning of the 23d, brought forward for the operation of trephining to be performed standing up; but she defended herself so much that it was found necessary to throw her. First an incision about $2\frac{1}{2}$ inches long was made parallel to the maxillary spine, and another brought upon it obliquely from the inner angle of the eye; the skin, muscle and periosteum carefully dissected and pushed upwards, the facial portion of the zygomatic bone was trephined and the sinus open. A thick congested membrane made its appearance which being excised allowed the pus to escape. So as to clean the cavity an injection of carbolized water was made, and at the bottom of the sinus a bony surface, enamel in appearance was felt. Being loose in the sinus, removing it was tried, but its enormous size would not allow it to pass through the opening of the bone, which had to be enlarged with bone forceps; after much difficulty it was brought out. Pus then was discovered underneath which was also washed out, and then another bony tumour of the same kind—this second was followed by a third; both being removed, at last the cavity was found perfectly empty and clean. Being thoroughly washed, the wounds were brought together by stitches—a tent of oakum left at the commissure of the two incisions—compresses of cold water applied and the mare taken to her stall.

A large number of small broken pieces were found and saved for further examination. The three large pieces were each surrounded by a large and thick, highly vascular membrane which was quite adherent to the outer surface of the three lumps, and also to the mucous of the sinus; they were irregular in shape, but quite smooth on their outer surface. Their appearance is white with a slight yellowish hue—a small piece, thinned on a grinding stone, and placed under the microscope shows very plainly the bone-cells, a mass of earthy substance and what I fancied masses of hexagonal lozenges analogous to those of enamel nature; also the striated appearance of the dentine.

March 24th. The parts which had begun to swell in the afternoon after the operation, were quite sore and swollen; on removing the oakum, very offensive, dark colored matter escaped. The wounds were well washed and treated by carbolic injections three times a day; cold water compresses.

25th. Discharges through the nose slight; swelling smaller; very offensive odor of necrosed bone.

26th. Swelling increased; some stitches give way.

28th. Small pieces of necrosed bone are removed. Same treatment.

29th. Swelling very large, eye is almost entirely closed. Granulations, quite prominent, were cauterized with nitrate of silver. Warm fomentations.

30th. No discharge from the nose; healthy suppurations from the opening of the wound, which was rapidly closing.

April 2d. Swelling gone; granulations cauterized again.

8th. Discharged, entirely well.

TRAUMATIC TETANUS FOLLOWING HYPODERMIC INJECTIONS OF MORPHINE.

Gray gelding, seven years old, which suffered one night with spasmotic colics, and was treated by hypodermic injections of morphine and atropine in three places, on one side of the neck; these were followed by the formation of small abscesses, which being opened, healed readily. Four days after he was found with his jaws closed tight, the membrana nictitans protruding over the eye, the muscles of the body contracted; in a word presented all the symptoms of tetanus.

The treatment consisted in the administration of Bromide of Potassium every four hours in drs. 4 doses, with chloral hydrate per rectum.

He was destroyed four days after by desire of the owner.

As he had been subject to the attack of colics, post mortem examination was carefully made of the abdomen to try to find the cause of these. The great mesenteric artery was found the seat of an aneurism, the mesenteric glands being much enlarged and congested, the intestinal canal proved to be healthy.

VARIETIES AND NEWS.

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VETERINARY HONORS.

By a large vote of 73 out of 75, Mr. H. Bouley, the world known general inspector of the French Veterinary Schools, has been elected President of the Academy of Medicine of Paris. This honor, thus conferred upon the most eminent member of the veterinary profession,

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reflects itself also upon this whole specialty of medicine, and is a brilliant recognition of the union of the two medicines and a proof of the appreciation of the importance of the researches of comparative medicine, so well brought forward by the new elected President.

The Veterinary Journal of February, brings us the news of the election of Professor McEachran, Principal of the Veterinary College of Montreal to a Fellowship of the Royal Veterinary College. Also of Prof. James Law of Cornell University. These are well deserved rewards, as we all know the talent of the Professors, and their indefatigable devotion to the advancement of Veterinary Science on this continent.

WAR TO SPITZ DOGS.

The war originated by the press against the Spitz dogs seems to become serious for that pretty breed. New York Aldermen are discussing the propriety to tax all the dogs; Connecticut's Legislature impose a yearly tax of five dollars on the dog, and of ten on his fair sex, while Boston asks the entire destruction of the breed. Would not a better knowledge of the symptoms of hydrophobia amongst the people be a better means to prevent many of the sad accidents which we have to record yearly?

INTOXICATION AS A MEANS OF RESTRAINT.

A partial intoxication by drenching a horse with wine slightly alcoholized is mentioned as a means of restrain, while submitted to the operation of clipping. Would it answer for minor operations?

STERILITY IN MARES.

As a means to facilitate the fecundation of sterile mares, the process of slow dilatation of the cervix by careful introduction of the index of the hand first and followed by that of the other fingers brought together and pushed in like a wedge through the os, is recommended by French Veterinarians.

WASH—FOR THE TREATMENT OF OZENA.

R. Hyposulphite of Soda oz. i, Distilled water oz. xx, makes an excellent mixture for irrigation of the nasal fossæ in case of ozena.

PRODUCE OF MILK IN COWS.

There are \$500,000,000 invested in cows in the United States. The estimated value of butter that can be produced from a first rate cow is \$94.00, while a common cow will produce from \$30.00 to \$40.00 worth. (*Agricultural Journal, Philadelphia*).

UNITED STATES VETERINARY MEDICAL SOCIETY.

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The twenty-seventh semi-annual meeting of this society was held at Young's Hotel, Boston, Massachusetts on Tuesday the 20th of March, the President, Professor Liautard of the American Veterinary College, New York, in the chair. The following members were present:

Doctors Wood, W. Saunders, Budd, Burden, W. Bryden, Very, Hopkins, Stocker, Lyman, Cosgrove, Holcombe, J. Saunders, Colburn, Flagg, Thayer, and Robert Saunders. The minutes of the previous meeting were read and approved. The following named gentlemen were proposed for membership.

W. G. Coates, D. V. S., New York City.

C. H. Hall, D. V. S., New Bedford, Massachusetts.

C. H. Peabody, D. V. S., Waltham, "

Geo. P. Penniman, D. V. S., Worcester, "

It was agreed that all those who intended competing for the prizes offered by the society should lodge their papers with the President on or before the 15th day of July next.

Dr. Thayer proposed, and it was agreed to: that Congress be memorialized by a committee of the society for the enactment of a law or laws which shall be more stringent, in regard to the prevention of importation of diseased animals into the United States from Foreign countries. The following named gentlemen were appointed to serve at this committee: Drs. Thayer, Lyman, and Robertson. Dr. Lyman presented a section of the 13th and 14th ribs of a horse, which showed the effects of a previous fracture, and to which was firmly attached a portion of the mesentery. This horse, in October, 1875, had fallen with his cart from an embankment some 15 feet high, striking the right side upon the stump of a tree; he seemed at that time to be generally lame and sore, however after a few weeks rest he was put to work and continued his work "as well as ever," until February 26th,

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1877, on the evening of which day he died apparently from inflammation of the bowels after an illness of some 15 hours. At the post mortem examination made next morning, nothing sufficient to cause death was found, until coming to the diaphragm when it was noticed that it was perforated and that a portion of the duodenum had slipped through this being withdrawn by very gentle traction revealed about 5 feet of the bowel in a highly inflamed, almost gangrenous condition; the hole in diaphragm being next examined proved to be about one inch and a half in diameter, round with its edges thoroughly cicatrized, in fact almost cartilaginous; evidently an old affair. Through this hole was stretched a portion of the mesentery tract and crossing the body from towards its center to place of attachment to the ribs at an angle of about 45 degrees.

Dr. Wood exhibited the hock joint of a horse called "Redleg" which was shot at the age of 33 years, he had always been lame since 5 years old in this limb with the peculiarity that the lameness remained about the same; he never warming out of it in any degree upon exercising. Three or four days before he was killed he was slightly lamer than usual. Post mortem examination revealed fracture of cuboid into 3 pieces, which fracture had evidently existed but a short time; there was no known cause for this.

Also a tumour taken from the supra orbital region of the head of a 4 year old colt; this appeared to be a collection of four imperfectly formed molar teeth; there was considerable difficulty experienced in detaching it from the orbital arch, which was finally done with a large pair of forceps.

Also the bones of a 3d fore extremity amputated from about the middle of the usual metacarpus: all was perfect, even to the hoof except that there were but two small metacarpus between the two extremities one on the usual and one on the superficial limb, near some 3 years since operation and the colt seems all right.

Doctor A. A. Holcomb presented a paper upon "Special Meningitis, Azoturia, and Paraplegia, are they one and the same disease?" The doctor lamented that so great a difference of opinion so often existed amongst veterinarians and thought that it was necessary for the elevation of the profession that our knowledge of the pathology of certain diseases should be improved, so far as possible, by careful and exact research, so that there may not be left so good a chance for this difference as at present unfortunately exists. Special meningitis was undoubtedly due to a specific poison, but what was it? It is certainly not coming from any distetic error neither is it transmissible. It is frequently traumatic; but this cause is certainly not to be confounded with its malarial origin. As far as making up a differential diagnosis between Cerebro-spinal-meningitis and simple special meningitis goes, he could

say that if deglutition is not complete the case is one having a cerebral complication in special meningitis the temperature will rise to 103 degrees F., and the pulse will be full hard and strong whilst with the cerebral form the temperature will rarely rise above 100⁵ degrees F., and the pulse will be soft in character. Are Paraplegia or Azutoria forms of either the cerebral or special meningitis? In Azotoria, paraplegia is but a symptom: can it be that nitrogenous urine exists and is brought about in the way set forth by Professor Williams; if this is the case why are not all horses fulfilling these special conditions affected. It cannot be proved that urea exists in great abundance and if it were so its non-elimination would simply produce uraemic poisoning. Is it not that this train of symptoms is simply due to a reduction of the quantity in the system? It certainly "is not an inflammatory disease in any sense of the word." A very interesting discussion of this subject or subjects followed, which was participated in by Doctors Bryden, Thayer, Very, the President and others. Dr. Liautard suggested that the ophthalmoscope may be found useful as an aid to differential diagnosis between Cerebral and Spinal Meningitis in some cases. Doctors Thayer and Bryden communicated interesting cases of plugging of the illiaes as causes of paraplegia.

Dr. Wood communicated the case of a horse which had been treated empirically for the reduction of splint, he was found with a great amount of œdema of both fore legs and breast and in a highly febrile state and with great excoriation in the flexures of the joints of the diseased limbs; he ordered a dose of cathartic medicine, the sores to be cleaned with a solution of acid carbol oz. 1, and glycerine oz. 6: in the course of the next twenty-four hours he was on the road to recovery, and two weeks after the hair had started fairly over where the abrasions had been; ten days after this the Doctor received an urgent call to see the same horse. This time he was found œdematosus from head to foot; the hair stood up and whenever touched it would come off in large mat-like pieces, leaving the skin as bare as one's hand. Ordered chloral hydrate oz. ss, warm water gals. 2; horse to be dressed all over with the wash and covered tightly. The first application took off four-fifths of the hair which was on the whole body; but the itching stopped and now the horse was apparently doing well.

The society then ordered that two hundred more copies of the Constitution and By-laws of the Association be printed with an appendix, containing the names of all past and present members, after which the meeting adjourned.

CHAS. P. LYMAN, Cor. Sec'y.

CORRESPONDENCE.

LAMENESS IN HORSES.

Lameness in horses is a subject that has received much attention, and many theories have been advanced, and opinions expressed in the different method of protecting their hoofs so as to prevent diseases of the feet and limbs. Everything that can add to the animal's value, comfort and usefulness being of much importance, it may be well to bear in mind that the horseshoer, however much to blame in causing lameness in many cases, is not the only one on whom responsibility rests. The horses' condition in domestication is entirely different from their natural condition, and the variety of circumstances under which they are reared exerts important influences in their development—modification. Their organization may be directed either towards perfection or the reverse, accordingly as their wants are understood and attended to; breeders and owners have therefore duties to perform, both in rearing the young and when older in managing and determining the amount and character of the work for which they are adapted and capable of performing, which if neglected or misunderstood will be productive of mischief and loss for which they are alone responsible. It is important to remember that mere maintenance of parts in the young is not all that is necessary, for should growth be arrested or interfered with for a length of time during the growing period of their lives (colthord) in any part of their bodies, the loss will seldom if ever be regained. There is no part of their system more important than the hoof and hardy symmetrical development of it can only be attained when it is subjected to *tear and wear*; this is compensated for by a growth that nothing can so stimulate to meet the demand for, equal to exercise on suitable ground. The difference between the finger nails of the hard-working farmer and those of the clerk is a familiar illustration of the law that regulates such cases. The restraint and confinement to which young horses are subjected especially during winter in Northern Countries is a fruitful source of mischief to the locomotory and sometimes also to the digestive system, for we have among horses as among men many examples of diseases such as plethora, dyspepsia, &c., resulting in part at least, from idleness. Muscular activity must be kept up in order to exert its proper influence on the circulation and through it on digestion and excretion, respiration, heat and general nutrition. And vigorous robust maturity can only, with certainty be attained when from both the animal is placed as much as possible in circumstances when every organ and every faculty can be regularly exercised.

The climate and character of a country give habit and physical forms which often alter their constitutions and lead to differences of organization; the influence thus exerted on the limbs can be readily observed by comparing those of horses reared on low flat districts with those reared among the hills; the muscles are different and so are the form and quality of the hoofs, in both cases they may be sound and healthy and each one the best adapted for the locality in which they were produced, but when put to work, especially if on the streets of our cities, the hoof of one will in all probability be found softer and not so readily adapted to the changed circumstances. This also suggests the importance of knowing the kind of pasturing most suitable for different qualities of hoofs, and the effect which wet or dry seasons have on the same.

A knowledge of the circumstances and physical conditions necessary to insure vigorous development and to maintain the limbs in health is of the highest importance not only to the owners of horses, but to veterinary surgeons and horse shoers also, for many of the diseases met with arise either from neglect or from the requirements of the animal being misunderstood and their prevention and even recovery can often be satisfactorily accomplished by an intelligent change in their management and without the aid of other remedies.

Boston, December, 1876.

W. BRYDEN, V. S.

A. LAR

V E T E

COMMUNICATIONS RECEIVED.

AN UNUSUAL ACCIDENT.

The subject of this accident was a bay colt 5 years old. I saw him taking his exercise in perfect health and condition, about 2 $\frac{1}{2}$ P. M., March 1st. About 3 $\frac{1}{2}$ P. M., while on the street still at exercise, a wheel belonging to a grocery wagon ran on the *front* of the hoof of the near, left hind foot, fixing it firmly to the ground. The animal struggled violently to free himself, and succeeded by *leaving the hoof behind* and pulling out every tissue, bone, matrix, from the horn as nicely as a man would pull off a boot.

This accident has an interest in a *legal* point of view. I was once a witness in a horse law case, where the animal had a foot injured by the crush or weight of a truck wheel; it was contended by the defense and that side won the case, that from the shape (angular or sloping sides) of the hoof it would be impossible for a wheel to *remain on* the hoof, but that it would slide off, or push the foot aside.

This case proves the contrary; of course I had the animal shot. The hoof I have, and shall send it to the American Veterinary College Museum.

ALFRED LARGE, M. D., M. R. C. V. S. L.

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